REMARKS

The Examiner has requested that the Abstract be amended to remove the word "invention", thus, the amendment to the Abstract is included in this response

The Examiner has rejected Claims 1 and 3 under 35 U.S.C. 102(b) as being anticipated by Yagi et al. (Map-Based Navigation for a Mobile Robot with Omnidirectional Image Sensor COPIS, 1995). Examiner has indicated that Claims 2 and 4 would be considered allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates Examiners indication of allowable subject matter, but respectfully traverse the rejections.

The Examiner states that Yagi et al. teaches a method for avoiding objects along a path programmed into a robot that comprises "deriving a population coded control signal..." with respect to Applicant's Claim 1. This is not a correct assertion.

Applicants specification specifically defines a population code using the following wording "Referring to Figure 2, biophysical systems, like mammals, sample a parameter space through set of "tuned" feature detector neurons, **p1** thru **p6**. In practice, some neuron types span more than one "tuning" dimension, for example location and orientation, as is in the case of motion processing. The collection of neuron outputs is called a population code. The population code represents a quantized orientation measurement that is capable of simultaneously representing multiple tunings, like two distinct orientations at the same location".

Nowhere in Yagi et al. is there a definition of population code. In fact Yagi et al. does NOT teach information coding, so one must assume they are using traditional scalar or vector encoded values.

Examiner states that Yagi et al. also includes a step that includes "deriving said distance from said object to said electronic imager by processing a population coded set of algorithms" with respect to Applicant's Claim 3. This is not a correct assertion for the reasons set forth above.

Applicants specification clearly defines a population code as noted above, whereas Yagi et al. does NOT use or define any population code. Further, Yagi, et al.'s images are captured via a nonconventional omnidirectional imager. In fact, applications of this sensor are the main contribution of the paper. All of the vision related computations performed in the map building and navigation behaviors of their robot are critically dependent on the nonlinear mapping of the imaged scene that results from their optical system. They exploit this mapping, and the associated omnidirectional imaging feature, to produce "azimuth" estimates that subsequently reveal environmental features through special computations. Applicant's method, in contrast, uses a traditional (linear mapping) imager with which the computations proposed by Yagi, et al. are completely inapplicable. With Applicant's conventional optics, the notion of azimuth has no particular meaning relevant to vision or navigation; rather, Applicant exploits features like "motion energy" and "velocity" as described in the specification.

Lastly, Yagi et al. teaches using their processor to build a world model that is subsequently applied to a map-based navigation algorithm. In contrast, Applicant's system is purely reactive; i.e., it finds an immediate threat (obstacle), avoids it, and quickly forgets about it as it negotiates the next obstacle. While one could use both a map-based navigation algorithm (such as Yagi's) in concert with a tactical reactive behavior (such as Applicant's), they exist independently and in no way does Yagi, et al. teach Applicant's "reactive" system.

Therefore, the Examiner is requested to allow Claims 1-4, and to pass this case to issue.

Applicant's attorney would be pleased to further discuss this matter by telephone with the Examiner if the Examiner concludes such a discussion would assist in moving this case to issue. No new matter has been added as a result of this response.

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Respectfully submitted,

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